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Technical Analysis and Findings

Utah Coal Regulatory Program

PID: C0070012
TaskID: 4575
Mine Name: WELLINGTON PREPARATION PLANT
Title: COARSE REFUSE INVESTIGATION

Summary

On April 4th, 2014, the Division of Oil, Gas and Mining (the Division) received an application from Price River Terminal, LLC (the Permittee) to amend the mining and reclamation plan (MRP) for the Wellington Prep Plant. The Permittee proposes to revise the reclamation commitments in the currently approved MRP by utilizing the material in the coarse refuse pile as base/fill for a railroad track expansion in the oil trans-loading area.

The Permittee conducted an investigation as to the chemical properties of the coarse refuse (the material). The purpose was to evaluate: 1) whether the material would be considered hazardous waste based on RCRA-8 analytical parameters and 2) whether the use of the material as base/fill for proposed railroad tracks could potentially cause contamination of ground and surface water.

The Division has requested that the Division of Environmental Quality- Solid and Hazardous Waste (DEQ) and Division of Water Quality (DWQ) make a finding as to whether the proposed utilization of the coarse refuse material presents a potential issue relative to contamination of ground and surface water of the State of Utah. Once the agencies have made their determinations, the Division will re-assess whether the proposed use of the coarse refuse material is acceptable per the State of Utah R645-Coal Mining Rules.

Deficiencies Details:

None

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Environmental Resource Information

Hydro Probable Consequences Determination

Analysis:

The amendment does not meet the Probable Hydrologic Consequences Determination. Once the evaluation by the Division of Environmental Quality and the Division of Water Quality is completed, the Division will re-assess whether the submitted revisions to Section 7.28.3.2 Acid/toxic forming material contamination potential, is adequate.

Deficiencies Details:

R645-301-728: Once the evaluation by the Division of Environmental Quality and the Division of Water Quality is completed, the Division will re-assess whether the submitted revisions to Section 7.28.3.2 Acid/toxic forming material contamination potential, is adequate.

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Operation Plan

Spoil Waste Coal Mine Waste

Analysis:

The application did not include any geotechnical investigation, stability analysis, design, or details for construction, operation, maintenance or removal of the refuse material to be used as railroad base.

Deficiencies Details:

R645-301.536.600 and R645-3101.537.230; The permittee must provide the appropriate geotechnical investigation and stability analysis for the refuse material. Amendment should include design drawings and a narrative with details of construction, operation, maintenance, and removal of the material.

jowen

Hydrologic Acid and Toxic forming Materials

Analysis:

The Coarse refuse pile is about 300-400 ft. wide and 1,400 ft. long. The pile covers 10 acres. the height of the pile is approximately 20 - 40 ft. Based on these dimensions, the pile could contain as much as 830,000 cu yds. of refuse.

Samples of the coarse refuse were taken at six locations on February 4, 2014. Two composite samples from each location represented the 0 - 6 and 6 - 12 ft depths. At one location, a third composite sample represented the 12 - 18 ft depth increment. This sampling activity is referred to as the 10th sample period and is found at the end of Section 2.22 of the MRP. The sampling was conducted under the direction of Eric Peterson, certified Geologist, and Bob Long, certified Soil Scientist. Attachment A of the 10th Sample Period includes the laboratory analysis.

Attachment A describes the samples as averaging 70% rock with a range of 50 - 85% rock in the samples. The report also states that there is remaining 15 - 50 % that is """"Fine-grained materials consisting pre-dominantly of silt, clay and fine-grained sand particles are also present in the voids between the rocks."""" with small amounts of metal and concrete.

Intermountain Labs/Sheridan received the samples on Feb 10, 2014 and prepared the samples as follows: The rocks were pulverized and mixed with the finer particles and sieved through a 10 mesh screen. The following methods used to analyze for total metals: EPA digestion 3050 and ICP analysis 6010C. (personal communication with Karen Secor, Intermountain Laboraties, Sheridan WY, 5/5/2014). A one gram sample was diluted with 100 mls and digested. The total metal quantity was adjusted for the water volume and reported in mg/Kg. All 8 RCRA metals were analyzed: As, Ba, Cd, Cr, Pb, Se, Ag, Hg.

The EPA lists the total maximum concentration of metals in Table 1, 40 CFR 261.30 when analyzed by EPA Method 1311, Toxicity Characteristic Leaching Procedure (TCLP). TCLP requires a 20:1 dilution of a sample during analysis and extraction. Therefore the use of the total metal content, divided by 20 can serve to approximate the TCLP metal content.

All eight metals fall below the TCLP Table 1 maximum using this method of analysis.

Hot water extractable selenium concentrations are listed as acceptable and unacceptable in the Division Guidelines for management of Topsoil and Overburden. These guidelines are based upon the 1994 Wyoming Joint Selenium Task Force recommendations, which were updated in November 1996. These guidelines suggest that 0.3 ppm extractable selenium is a suitable concentration for uplands and ephemeral drainages for the purpose of preventing adverse impact on surface or groundwater, but that 0.1 ppm is more suitable for other hydrologic features """"unless the operator can verify that higher selenium concentrations will not affect water quality or target organisms."""" The waste represented by sample CR1405 was over 0.1, but less than 0.3 ppm selenium in all depths. The remaining 5 locations did not have elevated selenium.

This suggests that 1/6 or 17% of the material sampled to a depth of 12 feet may be detrimental for placement where it may be in contact with water. A hydrologist should evaluate the background concentration of selenium in the adjacent Price River for comparison purposes.

Sodium Adsorption Ratio, SAR, was also evaluated on the samples. Nine of the thirteen samples or 69% had high concentrations of sodium. An engineer should evaluate the effect of the concentration of sodium salts on the geotechnical properties of the waste rock for its intended use.

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Hydrologic Acid and Toxic forming Materials

Analysis:

The amendment does not meet the Acid- and Toxic-Forming Materials and Underground Development Waste requirements of the State of Utah R645-Coal Mining Rules.

Formal requests have been sent to the Utah Division of Environmental Quality (DEQ): Solid and Hazardous Waste Division as well as the Utah Division of Water Quality (DWQ). The Division has requested that the DEQ and DWQ make a finding as to whether the proposed utilization of the coarse refuse material presents a potential issue relative to contamination of ground and surface water of the State of Utah.

Once the DEQ and DWQ provide their determinations (based upon the information and chemical data provided in "Investigation of the Chemical Characteristics of Material in The Coarse Refuse Pile at the Price River Terminal, LLC Wellington Prep Plant, Carbon County, Utah", March 31st, 2014), the Division will make its finding as to whether the proposed utilization of the coarse refuse material is acceptable. In light of the source of the coarse refuse material, the Division felt it prudent to consult the experts at the DEQ and DWQ for their determination as to any potential impacts that could result from its proposed use.

Based on the information provided by the Permittee, the coarse refuse pile is approximately 1,400 feet in length, 300 to 400 feet wide and approximately 20 to 40 feet in height. Thirteen composite samples were obtained at six different sampling locations (See Figure 3, Sampling Locations at the Coarse Refuse Pile. Upon examining the data compiled in Table 2, Price River Terminal, Wellington Prep Plant Coarse Refuse Pile Laboratory Analytical Results, the single deepest sample obtained during the investigation was 18' (less than half the approximate height of the material according to the information provided). The remaining five holes where samples were obtained were advanced to a depth of 12'.

If it's determined that the coarse refuse is inert and does not pose a likelihood of causing contamination of ground and surface water, the Permittee would only be allowed to utilize the upper 20' for base/fill applications. Additional sampling would be required prior to utilizing any of the coarse refuse material below an approximate depth of 20' (assuming the material is removed from the top down). If the material was not removed from the top down, the information provided to the Division would be considered inadequate.

Deficiencies Details:

The amendment does not meet the Acid- and Toxic-Forming Materials and Underground development Waste requirements of the State of Utah R645-Coal Mining Rules. The following deficiency must be addressed prior to final approval:

R645-301-731, -731.300 and 731.312: The Permittee must provide a commitment in the MRP as to how the coarse refuse material would be removed for its proposed alternative use as railroad base/fill (i.e. top down or otherwise). If the material is to be removed from the top of the pile down, the Permittee must provide a detailed commitment as to how and when additional sampling would be conducted on the bottom approximately 20' of material. The additional sampling would be required to demonstrate that the remaining coarse refuse material doesn't pose a potential contamination risk to ground and surface water. The commitment must address how the Permittee and Division inspectors would be able to readily identify, in the field, when additional sampling is required. If the material would not be removed from the top down, additional samples would need to be acquired to the full depth of the coarse refuse pile and submitted to the respective agencies for review prior to final approval.

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Reclamation Plan

Topsoil and Subsoil

Analysis:

There is no change to the coarse refuse reclamation plan which is provided in Chapter 3, Section 3.41 p. 41 - 43. Cover will be applied to a depth of 4 feet, including the adjacent stored topsoil. The surface will be roughened using either contour trenching or gouging. Topsoil will be sampled and fertilizer will be applied based upon the analysis (Sec.3.41, p. 29). Mulch will be applied at a rate of 2Tons /acre and crimped in to the surface (Sec. 3.41, p. 43). Seed and fertilizer will be drilled where possible on the coarse refuse. Gypsum may be applied to high salt content soils (Sec. 3.41, p. 29). The seed mix depends on results of the test plots (Section 3.41, p. 30-31).

Ambiguous details of the reclamation plan should be finalized, such as whether mulch (2 ton/ac) will be incorporated with gouging or contour trenching and how will that affect the choice of seeding technique; what parameters will be analyzed to determine fertilizer and soil amendment rates; and the changes to be made to the seed mix based upon test results. The proximity of the site to the PRWID treatment plant makes for a ready source of biosolids which would enhance reclamation.

The plan states that either the coarse refuse will be completely removed for use as fill or that the post mining land use of the area will be changed from grazing and wildlife to industrial (Section 3.41, p. 41). In the latter case, the pile would need still need to be reclaimed. The removal of coarse refuse from the pile will reduce the coarse refuse pile in height and depending upon the remaining volume, there is an opportunity to reshape the pile to improve reclamation success. Since reclamation details will depend on the volume of pile remaining, a commitment should be added to the redline statements made in Sec. 3.41 p. 41 to indicate that the final details of the reclamation plan will be confirmed with the Division prior to the onset of reclamation of the remaining pile or of the foot print of the pile for use as an industrial site.

Deficiencies Details:

R645-301-241, A commitment should be added to the redline statements made in Sec. 3.41 p. 41 to indicate that the final details of the reclamation plan will be confirmed with the Division prior to the onset of reclamation of the remaining pile or of the foot print of the pile.

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Revegetation General Requirements

Analysis:

On April 7, 2014 the Division received an application to use the coarse refuse at the Wellington prep plant as base material for the railroad track system in the transloading area. This memo will include a review of that information. The amendment includes sampling results of the coarse refuse pile and text changes to chapters 2,3 and 7. The text changes to the biology section are addressed in chapter three, section 3.41 pages 41, 42 and 43. The text changes on page 41 address the use of the coarse refuse noting that the current reclamation plan and bond will remain the same until such time as all of the refuse has been used at which time an amendment may be submitted for appropriate text changes to the MRP regarding reclamation and or changes in the post mining landuse. Once it is determined that conditional approval is appropriate the following language ""has been provided "" should be changed to ""has been approved"" in the first paragraph of the redline text on page 41.

Deficiencies Details:

This is not a deficiency per se but it should be note that once it is determined that conditional approval is appropriate the following language ""has been provided "" should be changed to ""has been approved"" in the first paragraph of the redline text on page 41 of the application.

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